

REMARKS

Claims 1, 5, 8, and 13-14 are pending in the present application. Support of the amendment may be found in paragraphs [0052]-[0053] and FIG. 7. New claim 15 has been added. No new matter has been added. Claim 4 has been cancelled. The Examiner is respectfully requested to withdraw the rejections in view of the amendments and the following remarks.

DOUBLE PATENTING

Claims 1, 13, and 14 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3 of copending Application No. 12/751,614 (Attorney Docket No. 9281-5733). Applicant is submitting herewith a Terminal Disclaimer to overcome the rejection. Withdrawal of the rejection is respectfully requested.

REJECTIONS UNDER 35 U.S.C. §103

Claims 1, 5, 8, 13, and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Akira (JP 2000-187197) in view of Ishihara (US 2001-0019379) and Goto (US 5,999,685). Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Akira in view of Ishihara, Goto, and Oh (US 2003-0098936). Applicant respectfully traverses this rejection for at least the reasons set forth below.

The primary reference to Akira discloses a structure in which a light guiding plate 22 of a front light 20 of a liquid crystal display device 30 also serves as the lower substrate of a touch panel 10, and in which a second resistance film 13 made of indium tin oxide (ITO) is formed on the upper surface of the light guiding plate 22, as shown in Fig. 1 of Akira.

A repeating saw tooth-like structure is formed on the surface of the light guiding plate 22. As shown by a broken line in Fig. 1, each "tooth" of the saw tooth-like structure is

composed of a narrow but steep slope (i.e., inclined plane) on the right side of the saw tooth, which reflects light transmitted by a light source 21 toward the liquid crystal display device 30. Also as shown in Fig. 1, each saw tooth also includes a wide, but gentle slope on the left side of the saw tooth, which causes light that comes from the liquid crystal display device 30 to propagate to the outside. In contrast, the present invention includes a vertical angle of the surface of the first transparent resistance film in each section of the ridge portion having an obtuse angle, as clearly shown in Fig. 4 of applicant's specification, which is very different than the sharp non-obtuse angles disclosed in Akira.

Further, in applicant's claimed invention, the surface of the first transparent resistance film in each section of the ridge portions has a top portion and first and second slanted faces on corresponding sides of the top portion where the first and second slanted faces are symmetrically in-line with respect to the top portion. Such symmetry is not shown in Akira. Additionally, in applicant's claimed invention, the height (H) between the top portion of the surface of the first transparent resistance film in each section of the ridge portions and the bottom portion of the surface of the first transparent resistance film ranges from 0.1 μm to 10 μm in height, and is formed over a valley between the adjacent ridge portions. Again, this is not taught or suggested in Akira.

Regarding the above-enumerated differences between applicant's claimed invention and the Akira reference, the claimed invention has several advantages. First, when the transparent coordinate input device is touch-operated by application of a pressing force, as illustrated by reference numeral 49 in Fig. 5, the claimed invention ensures that the pressing force directed to a region of a second transparent resistance film 33, which is provided at the

operation-surface side, contacts the left slanting face with respect to the top portion of the surface of a first transparent resistance film 31 provided at the mount side.

That is, a pressing force directed toward the left slanting face is about equal to the pressing force that causes the second transparent resistance film 33 to contact the right slanting face in another region of the second transparent resistance film 33, with respect to the top portion of the surface of the first transparent resistance film 31. Because of the pressing forces are about equal regardless of the side or direction applied, coordinate press detection is reliable and uniform.

In contrast, in Akira, because the structure of the resistance film 13 includes the left-side wide but gentle slope and the right-side narrow but steep slope, detection of a pressing force that causes contact between the first resistance film 12 having the right-side narrow but steep slope and the second resistance film 13, is relatively difficult and unreliable compared to detection of a pressing force that causes contact between the first resistance film 12 having the left-side wide but gentle slope and the second resistance film 13. Accordingly, local coordinate detection in Akira is less reliable.

Turning now to the secondary reference to Ishihara, Ishihara discloses a light guide 2 provided at the observation-face side (at the upper-surface side) of an LCD panel 1. The surface of the light guide 2 has a first slope 25a that is a wide but gentle slope on the left side, and also has a second slope 25b that is a narrow but steep slope on the right side. (Ishihara, Fig. 16, ¶¶[0063]-[0067]). Further, Ishihara discloses that:

[W]hereas the front surface is formed with a plurality of projections 25 each of which defined by a first and a second slopes 25a, 25b. The distance (or pitch) between the most retreated points 19 in the

front surface of the light guide 2 is constant (about 300 μm or less).
(paragraph [0065], emphasis added).

However, the Ishihara light guide 2 is a front-light type light guide, and thus necessarily omits many features of applicant's claimed invention, including the features directed to applicant's amended claim 1. Further, because of the configuration of the saw tooth surface, Ishihara suffers from the same deficiencies as Akira, as explained above.

Moreover, neither Akira nor Ishihara includes the features of claim 1 as amended, namely, "the surface of the first transparent resistance film in each section of the ridge portions that includes a top portion and first and second slanted faces on corresponding sides of the top portion, wherein the first and second faces are symmetrically in-line with respect to the top portion..." Further, neither Akira nor Ishihara teach or suggest "a height (H) between the top portion of the surface of the first transparent resistance film in each section of the ridge portions and the bottom portion of the surface of the first transparent resistance film that ranges from 0.1 μm to 10 μm and is formed over a valley between adjacent ridge portions." These claimed features are missing in the cited references. Additionally, neither reference discloses that a pitch of the ridge portions is between 100 μm and 500 μm , inclusive.

As disclosed in Fig. 4, and page 14, line 20 to page 15, line 18 of applicant's specification, the claimed invention provides additional advantages over the devices of the cited references. One such advantage is that the claimed features suppress the generation of a Newton's ring, which could have an adverse effect. Neither Akira nor Ishihara, taken alone or in combination, teach or suggest the claimed features that provide the above-described technical advantages.

Turning now to the additional secondary reference to Goto and Oh, these references, like Akira and Ishihara, fail to teach or suggest “a height (H) between the top portion of the surface of the first transparent resistance film in each section of the ridge portions and the bottom portion of the surface of the first transparent resistance film that ranges from 0.1 μm to 10 μm and is formed over a valley between adjacent ridge portions,” as recited in amended claim 1.

Figures 1A, 1B, 2A, 2B, 2C, and 3 of Goto disclose a light guide plate 1 of a surface light source, which is provided at a rear portion opposite the observation-face side of the liquid crystal display panel 7. However, the light guide disclosed in Goto is very different from the light guiding plate 22 in Akira, which is sandwiched between the touch panel 10 and the liquid crystal display device 30, as shown in Fig. 2 of Akira. Therefore, if one attempts to use the light guide disclosed in Goto as a light guiding plate that serves also as a lower substrate 15 of a touch panel 1 in Akira, light coming from a light source will not pass through the liquid crystal panel. The result of this is that no image is displayed on the screen. Therefore, applicant respectfully submits that combining Goto with Akira will not result in a functional device, and such a combination does not provide applicant's claimed invention.

Moreover, Goto does not include the amended features of applicant's claimed invention, such as “the surface of the first transparent resistance film in each section of the ridge portions that includes a top portion and first and second slanted faces on corresponding sides of the top portion, wherein the first and second faces are symmetrically in-line with respect to the top portion...” Further, Goto does not teach or suggest “a height (H) between the top portion of the surface of the first transparent resistance film in each section of the ridge portions and the bottom portion of the surface of the first transparent resistance film

that ranges from 0.1 μm to 10 μm and is formed over a valley between adjacent ridge portions.”

Accordingly, the cited references to Akira, Ishihara and/or Goto, taken alone or in combination, do not teach or suggest applicant’s claimed invention, and the cited references do not provide the advantageous features of the claimed invention, such as suppression of the generation of a Newton's ring.

Turning now to the Oh reference, Figure 3 of Oh describes a light guiding plate 122 of a lamp unit 110 provided on the back side of an LCD panel 159, which is located on the side opposite the observation side. Thus, Oh is similar to Goto in many respects, as described above regarding the inability to combine Oh with Akira to obtain a functional device. In addition, as shown in Figs 4-7 of the Oh reference, because the entire upper surface 122b of the light guiding plate 122 is provided with an irregular rough surface having a plurality of convex portions, the entire operation and structure of the Oh device is very different from the operation and structure of applicant’s claimed invention.

For example, the height range described in paragraphs [0066], [0069] and [0070] of Oh is very different from the configuration recited in independent claim 1, namely, where “a height (H) between the top portion of the surface of the first transparent resistance film in each section of the ridge portions and the bottom portion of the surface of the first transparent resistance film ranges from 0.1 μm to 10 μm and is formed over a valley between adjacent ridge portions.” Additionally, Oh fails to teach or suggest other features of applicant’s amended claim 1, such as “the surface of the first transparent resistance film in each section of the ridge portions the includes a top portion and first and second slanted faces

on corresponding sides of the top portion, where the first and second faces are symmetrically in-line with respect to the top portion...”

Applicant respectfully submits that the references to Akira, Ishihara, Goto, and Oh taken alone or in combination fail to teach or suggest the features of applicant's claimed invention. Applicant reasserts the above arguments in support of patentability of pending dependent claims 5, 8, 13, 14, and new dependent claim 15.

CONCLUSION

Based on the above amendment and remarks, Applicant respectfully submits that the claims are in condition for allowance. The Examiner is kindly invited to contact the undersigned attorney to expedite allowance.

Respectfully submitted,

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